ABSTRACT

The aim of this study was to evaluate the effect of plant raw materials with pro-health properties (black chokeberry, elderberry, Japanese quince, flax seeds, wheat germ, and inulin) on the content of selected bioactive components, total antioxidant activity as well as texture parameters, color and sensory indicators of the low-sugar jams produced from gooseberries, strawberries and cherries. Assessment of the jams was conducted immediately after their production and after 6 and 12 months of storage at refrigeration (10 °C) and room temperature (20 °C).

The highest level of total polyphenols, total flavonoids, total anthocyanins and antioxidant activity (ABTS, DPPH and FRAP) was determined in the jams with added chokeberry fruit. In turn, the jams with the addition of Japanese quince fruit had the highest vitamin C content. Both the longer time and the higher temperature of storage lowered the level of examined components with antioxidant properties, in particular the content of anthocyanins and total antioxidant activity.

Immediately after production, the jams with added flax seeds and wheat germ showed the highest hardness. Throughout 12-month storage the values of texture parameters increased. The color brightness (L^*) was the highest in the jams enriched with Japanese quince fruit, flax seeds and wheat germ. The dominant colors in jams were red (a^*) and yellow (b^*). The addition of chokeberry and elderberry fruits to jams led to a significant color darkening. Jams stored at a higher temperature usually had a darker color, which became stronger with the time of storage.

In sensory evaluation, both the jams analyzed immediately after production and those after 6 months of storage were scored high. Therefore, it can be concluded that jams enriched with plant raw materials can be a beneficial alternative to traditional ones. Even after 12-month storage, jams still retained high quality, except those with added flax seeds and wheat germ, which obtained lower scores for taste and aroma.

The studies performed showed that the products obtained can be a valuable source of antioxidants in the daily diet. In addition, these products obtained high scores in the sensory evaluation andacceptance of the evaluators. It was concluded that jams should be stored at a lower temperature. In the case of the products with the addition of flax seeds and wheat germ, the storage time should be additionally reduced to 6 months.

A Bowar